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NOTES ON BORMANS' SOME MATERIAL OF DERMAPTERA  
(INSECTA)

INTRODUCTION – The present study is based on 66 specimens determined by Bormans which belong to 15 species and are preserved in Museo Civico di Storia Naturale “Giacomo Doria”, Genova, Italy. These include “Types or Syntypes” of six species viz., *Psalis india* var. *minor* Bormans; *Psalis guttata* Bormans; *Forcipula americana* Bormans; *Apachyus feae* Bormans; *Labia papua* Bormans; *Spongophora semiflava* Bormans and *Anechura coriacea* Bormans.

Lectotype and paralectotypes are designed for *Psalis minor* Bormans; *Psalis gutta* Bormans and *Apachyus feae* Bormans.

BORMANS (1894) referred 1 ♂, 1 ♀ while describing *Spongophora semiflava*. Of these 1 ♂ agrees with the original description of the species and is considered here as the “Holotype” and the ♀ specimen is identified as *Forficula ornata* Bormans.

As a result of re-examination of Type ♂ of *Anechura coriacea* Bormans, the specimens determined by Bormans as *Anechura ancylura* Dohrn are found to be conspecific, with some variation in the pygidium and the internal teeth of forceps in males.

Brief remarks and illustrations for most of the species are provided.

LABIDURIDAE

ALLOSTETHINAE

**Allostethus minor** (Bormans) Figs. 1-6

*Psalis indica* Hagenbach, var. *minor* Bormans, 1900, *Annali Mus. civ. St. nat. Genova*, (2) 20: 447 (♂, ♀; Iles Mentawai: Sipora, 1894, L. Modigliani - Musée Civique de Gênes).

*Allostethus minor*; Brindle, 1965, *Ann. Mag. nat. Hist.* (13) 8: 588, fig. 8.

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(\*) Zoological Survey of India, Calcutta.

**M a t e r i a l e e x a m i n e d** - 1) Lectotype ♂ labelled as: i) Mentawei, Sipora, Sereinu, V-VI, 94, Modigliani; ii) Syntypus, *Psalis indica* var. *minor* De Borm., 1900 - a red lable partly printed and handwritten, not by Bormans; genitalia mounted between two cover-slips and pinned with the specimen.

2) Paralectotype 1 ♂ labelled as: i) Mentawei, Sipora, Sereinu, V-VI, 94, Modigliani; ii) ♂, 79; iii) Typus- printed in red; iii) *indica* Hag. *minor* Borm - handwritten, not by Bormans; iv) Syntypus, *Psalis indica* var. *minor* De Bormans - a red lable partly printed and partly handwritten, not by Bormans; genitalia not traceable, perhaps taken out earlier.

3) Paralectotype 1 ♀ labelled as: i) Mentawei, Sipora, Sereinu, V-VI, 94, Modigliani; ii) ♀, 80; iii) Typus - printed in red; iv) Syntypus, *Psalis indica* Hag. *minor* De Bormans - a red lable partly printed and partly handwritten, not by Bormans.

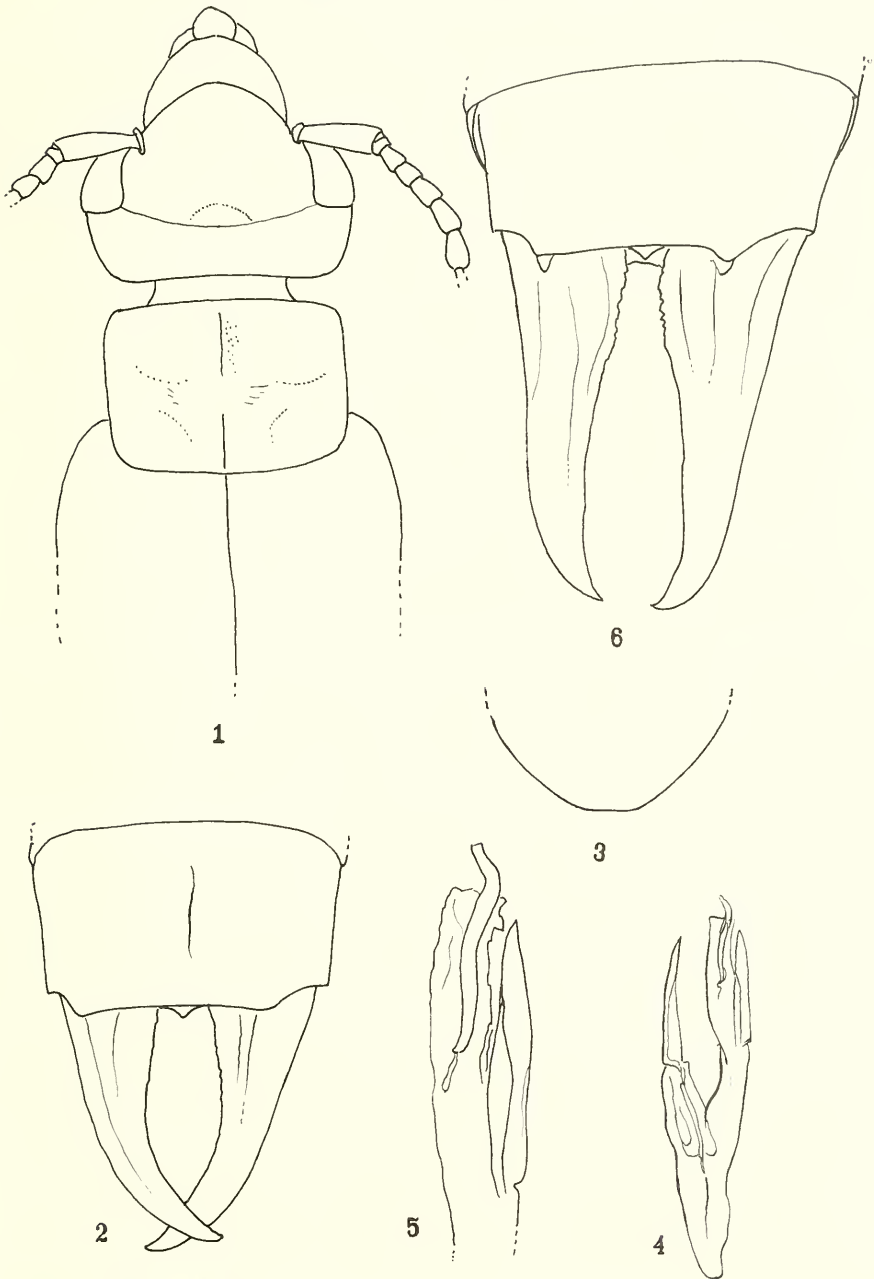
4) Paralectotype, 1 ♀ labelled as: i) Mentawei, Sipora, Sereinu, V-VI, 94, Modigliani; ii) Syntypus, *Psalis indica* Hag. *minor* De Bormans - a red lable partly printed and partly handwritten, not by Bormans.

5) Paralectotype, 1 nymph labelled as: i) Mentawei, Sipora, Sereinu, V-VI, '94, Modigliani; ii) 80, nympe - handwritten by Bormans; iii) Syntypus, *Psalis indica* Hag. *minor* De Bormans - a red lable partly printed and partly handwritten not by Bormans.

**M e a s u r e m e n t s ( i n m m ) :**

	Lectotype	Paralectotypes		
	♂	1 ♂	2 ♀♀	1 nymph
Length of body	13.4	14.3 (approx.)	14.4 - 14.9	13.5
Length of forceps	2.5	3.0	3.0 - 3.4	2.4

**D e s c r i p t i o n** ♂: General colour dark blackish brown; mouth parts, legs with femora and tibia in apical half and whole of tarsi; antennae from segments 14th to 18th and wings yellow. Long and sparse pubescence present, especially on legs and sides of abdominal segments.



Figs. 1-6: *Allostethus minor* (Bormans), Lectotype ♂, 1) Anterior portion of body; 2) Ultimate tergite and forceps; 3) Posterior margin of penultimate sternite; 4) Genitalia; 5) A portion of genitalia with right paramere and distal lobe, enlarged; Paralectotype ♀; 6) Ultimate tergite and forceps.

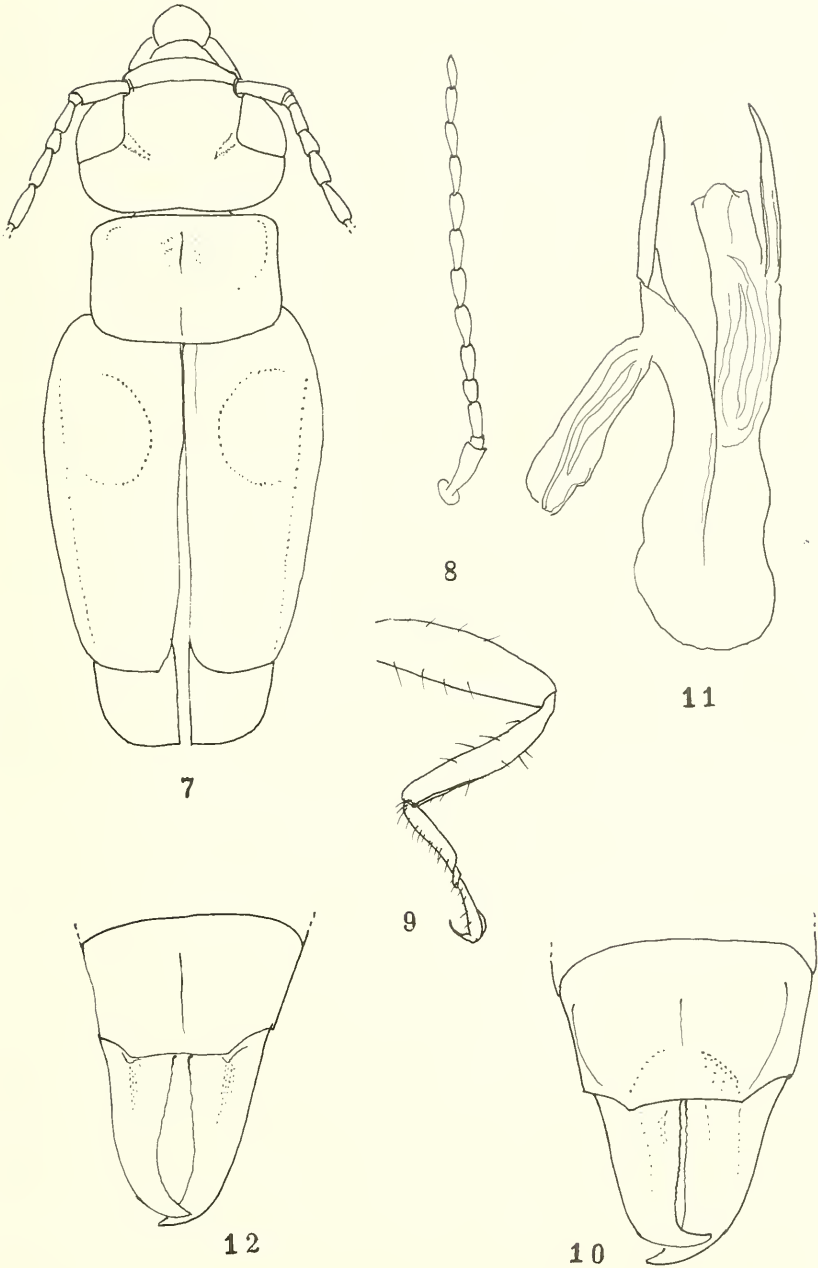
Head about as long as broad, smooth, frons convex, sutures distinct, hind margin feebly emarginate in middle. Eyes prominent, about as long as the postocular length. Antennae 18-segmented or more, basal segment stout, gently expanded apically, slightly shorter than the distance between antennal bases; 2nd transverse; 3rd stout, about  $1/3$  as long as the basal segment; 4th stout, about as long as the preceding or a trifle shorter; 5th slightly longer than 3rd, remaining gradually thinning and increasing in length distally, each gently narrowed basally, a few apical ones thin and rod shaped. Pronotum distinctly transverse, sides straight, hind margin briefly rounded, median sulcus distinct, prozona convex and well differentiated from weakly depressed metazona. Legs typical for the genus, hind metatarsus almost equal to combined length of pro- and mesotarsus, clad with dense hairs on underside. Elytra and wings well developed, smooth, former meeting along the middle line, shoulder prominent, hind margin obliquely truncate; latter  $1/4$  as long as the elytra. Abdomen convex, gradually dilated posteriorly, punctate, each puncture separated from the other by the space larger than its diameter, sides of segments convex posteriorly. Penultimate sternite roughly triangular, hind margin in middle faintly emarginate. Ultimate tergite transverse, obscurely punctulate, weakly depressed and gently sloping backwards, median sulcus short and faint, hind margin almost straight in middle and laterally oblique and emarginate. Pygidium declivent, triangular. Forceps remote at base, gently tapering and curving apically with apices hooked, internal margin finely crenulate. Genitalia as seen in figs. 4 and 5.

♀: Agrees with males in most characters except that ultimate tergite more narrowed posteriorly and forceps almost straight, gently incurved apically, internal margin strongly crenate in basal  $1/4$ .

**Remarks** — BORMANS (1900) while naming "*Psalis indica* Hagenbach. var. *minor*" mentioned only the locality data "Iles Mentawai: Sipora, 1894, L. Modigliani" without indicating the number of specimens examined by him. From all possible indications it is almost sure that five specimens were referred to by him and can be treated as "Syntypes" of the species. Since no detailed description of the species, is available it is described here designating Lectotype and Paralectotypes.

BRINDLE (1965) has described this species on a ♀ which does not appear to be conspecific.





Figs. 7-12: *Allostethella guttata* (Bormans), Lectotype ♂; 7) Anterior portion of body; 8) Antennal segments; 9) Hind leg; 10) Ultimate tergite and forceps; 11) Genitalia; Paralectotype ♀; 12) Ultimate tergite and forceps.

This species comes close to *Allostethus indicum* (Burmeister) and *A. setiger* Verhoeff, but differs from both by its slightly smaller size, distinctly transverse pronotum and symmetrical forceps in males.

### ***Allostethella guttata* (Bormans) Figs. 7-12**

*Psalis guttata* Bormans, 1900, *Annali Mus. civ. St. nat. Genova*, 2 (20): 448 (♂; ♀; Iles Mentawai; Sipora, 1894, E. Modigliani - Musée Civique de Gênes).

*Allostethella guttata*; Brindle, 1965, *Ann. Mag. nat. Hist.* (13) 8: 591, figs. 5, 9.

**Material examined** - 1) Lectotype ♂ labelled as: i) Mentawai, Sipora, Sereinu, V-VI.94, Modigliani; ii) Typus - printed in red; iii) ♂ 81. - handwritten; iv) *guttata* Bormans - handwritten, not by Bormans; v) Syntypus, *Psalis guttata* De Borm, 1900 - partly printed and partly handwritten, not by Bormans; genitalia mounted between two overslips two coverslips and pinned with the specimen.

2) Paralectotype 1 ♀ labelled as: i) Mentawai, Sipora, Sereinu, V-VI.94, Modigliani; ii) Typus - printed in red, iii) 82 ♀ - handwritten; iv) Syntypus, *Psalis guttata* De Borman, 1900 - partly printed and partly handwritten, not by Bormans; v) Museo Civico di Genova.

3) Paralectotype 1 ♀ labelled as: i) Mentawai, Sipora, Sereinu, V-VI.94, Modigliani; ii) Syntypus, *Psalis guttata* De Borm., 1990 - partly printed and partly handwritten, not by Bormans; iii) Museo Civico di Genova.

#### **M e a s u r e m e n t s (in mm):**

	Lectotype	Paralectotypes
	♂	♀♀
Length of body	9.7	8.9 - 10.8
Length of forceps	1.5	1.6 - 2.1

**Description** - ♂: General colour brownish black, mouth parts, antennae with one or two anteapical segments, legs with apices of femora and whole of tarsi, elytra with a rounded spot in apical half and wings along the external and internal margins with a narrow stripe yellow.

Head about as long as broad, smooth, frons convex, sutures obsolete, hind margin feebly emarginate in middle. Eyes prominent, slightly longer than the post-ocular area. Antennae (partly damaged) 13

- segmented or more, 1st stout, expanded apically, shorter than the distance between antennal bases; 2nd short, transverse; 3rd long and slender, slightly shorter than the 1st; 4th subclavate, slightly shorter than the preceding; 5th almost equal to 3rd in length but stouter, narrowed basally; remaining gradually increasing in length and thinning distally. Pronotum strongly transverse, about 1 and 1/2 times broader than long, anterior margin and sides straight, hind margin briefly rounded, median sulcus almost obsolete, faintly marked in posterior 1/3, prozona raised, well differentiated from weakly depressed metazona by a transverse depression. Elytra smooth, well developed, meeting along the middle line, hind margin obliquely truncate. Wings about 1/4 as long as the elytra, of same texture. Legs typical for the genus, hind tarsi with 1st segment slightly longer than the 3rd; 2nd segment short, claw with a short arolium, clad with short and long pubescence on the underside. Abdomen spindle shaped, convex, densely punctulate. Penultimate sternite narrowed posteriorly, hind margin rounded, in apical 1/3 with a median convexity. Ultimate tergite smooth, transverse, convex above, gently sloping backwards and narrowed, laterally with a carina, hind margin in middle straight, laterally oblique and emarginate, median sulcus faint and short. Forceps almost straight, contiguous, gently incurved in apical 1/3, tip hooked and pointed, in basal 1/3 trigonal, afterwards depressed, inner margin crenulate. Genitalia as seen in fig. 11.

♀: Agrees with males in most characters except that ultimate tergite strongly narrowed posteriorly and forceps comparatively less stout.

V a r i a t i o n - In the Lectotype ♂ the antennal segments of left side are comparatively less stout.

R e m a r k s - The above material represents the Syntypes of the species and the Lectotypes and paralectotypes are designated here.

The species is described and illustrated since the earlier descriptions are brief.

#### LABIDURINAE

### **Forcipula americana** Bormans Figs. 13-14

*Forcipula americana* Bormans, 1900, *Annali Mus. civ. St. nat. Genova*, (2) 20: 443 (Bolivie: Rio Beni, 1891, L. Balzan, 1 ♀, Musée Civique de Gênes and 1 ♂; ♀ Collect Brünner); Burr, 1910, *Trans. R. ent. Soc. Lond.*, 1910: 186; Brindle, 1965, *Ann. Mag. nat. Hist. Soc.* (13) 9: 262, figs. 15, 19, 4 and 45.

**M a t e r i a l e x a m i n e d .** - 1 ♀ labelled as: i) Rio Beni, La Paz-Reyes, Bolivia, Balzan, 1891; ii) Typus - printed in red; iii) ♀ 151, sp. nova - handwritten by Bormans, iv) americana Borm. - handwritten, not by Bormans; v) Typus ♀ *Forcipula americana* de Bormans, 1900 - red lable, handwritten, not by Bormans, vi) Museo Civico di Genova.

**R e m a r k s** - The above specimen is the "Syntype ♀" of the species and is figured here for the first time.

On the basis of texture of elytra and wings it comes close to *Forcipula quadrispinosa* Dohrn. Measurements: Length: body 19.0 mm; forceps - 6.0 mm.

## APACHYIDAE

### APACHYINAE

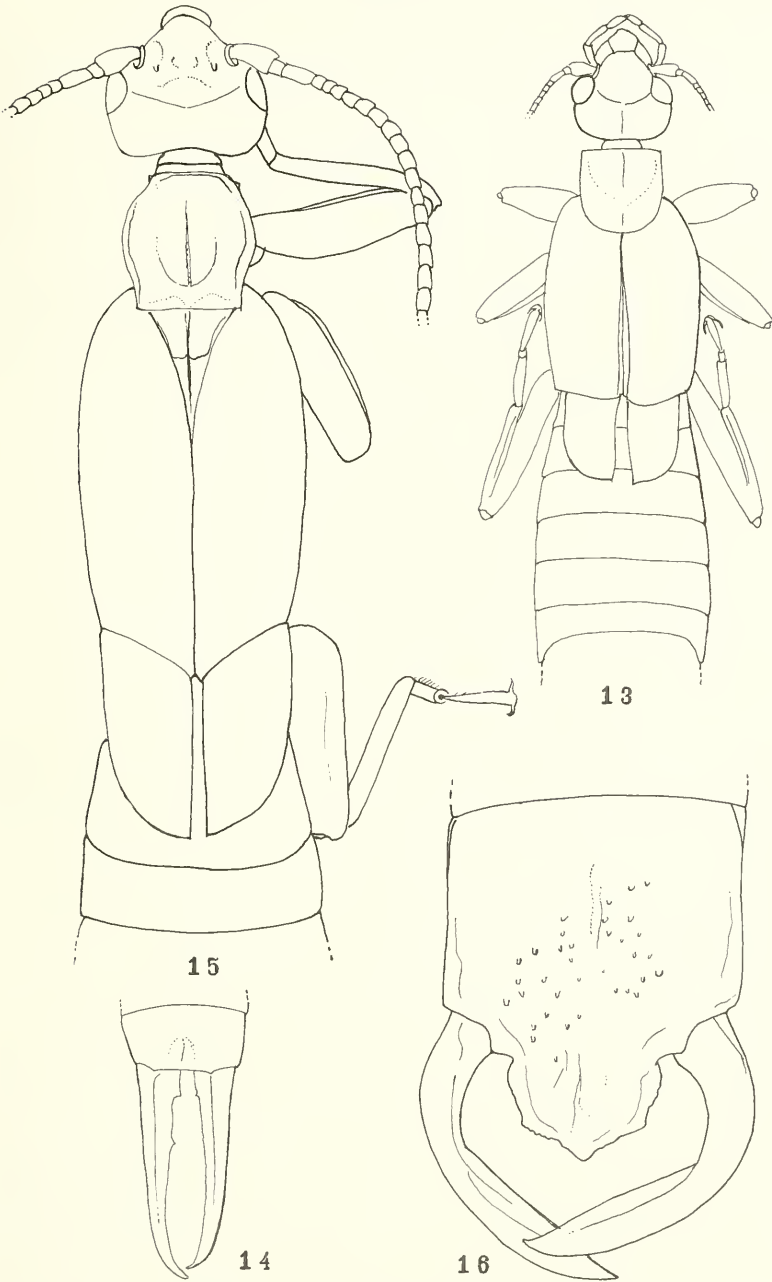
#### **Apachyus feae** Bormans Figs. 15-20

*Apachyus feae* Bormans, 1894, *Annali Mus. civ. St. nat. Genova*, (2) **14**: 372 (1 ♂, 1 ♀, 1 nymph ♂; Hab. Carin Chebà, 900-1100 m, Mai Décembre; Asciiiii Chebà (Carin), 1200-1300 m, Janvier, 1888); Bormans and Krauss, 1900, *Das Tierreich*, 11: 13, figs. 9a,b; Burr, 1905, *ŷ. Asiat. Soc. Beng. (N.S.)*, 1: 27; Burr, 1907, *Bull. Mus. Hist. nat. Paris*, **13**: 508; Burr, 1908, *Ann. Mag. nat. Hist.*, (8) **1**: 54; Burr, 1910, *Fauna British, India, Dermaptera*: 33, pl. 1, figs. 1,2; pl. 10, fig. 93; Burr, 1911, *Genera Insect.*, **122**: 45, pl. 4, fig. 7; Burr, 1912, *Annln. naturh. Mus. Wien*, **26**: 82; Burr, 1913, *Rec. Indian Mus.*, **8** (2): 140; Burr, 1914, *Rec. Indian Mus.*, **10**: 290; Bey-Bienko, 1959, *Ent. Obozr.*, **38** (9): 610; Brindle, 1965, *Ann. Mag. nat. Hist.*, (13) **8**: 442; Kapoor, 1968, *Agra Univ. ŷ. Res. (sci.)*, **16** (1): 22; Sakai, 1970, *Dermapterorum Catalogus Preliminaris*, **1**: 29; Srivastava, 1976, *Rec. zool. Surv. India, Occ. pap.*, **2**: 45.

*Apachyus pascoei* Kirby, 1896, *ŷ. Linn. Soc. (Zool.)*, **23**: 521, pl. 20, fig. 1; Burr, 1904, *Trans. R. ent. Soc. Lond.*, **1904**: 3; Burr, 1910, *Fauna British India, Dermaptera*: 35; Burr, 1911, *Genera Insect.*, **122**: 45.

**M a t e r i a l e x a m i n e d** - 1) Lectotype ♂ labelled as: i) Carin Chebà, 900-1000 m, L. Fea, V.XII-88; ii) Typus - printed in red; iii) Feae Borm. - handwritten, not by Bormans; iv) *Apachya Feae* sp. nov., ♂ - handwritten, by Bormans; v) ♂ - small label, printed; vi) Syntypus, *Apachya Feae* De Borm., 1894 - Red label partly printed and partly handwritten, not by Bormans; vii) Museo Civico di Genova; genitalia mounted between two coverslips and pinned with the specimen.

2) Paralectotype ♀ labelled as: i) Carin Chebà, 900-1000 m, L. Fea, V.XII-88; ii) ♀ - a small printed label; iii) Syntypus, *Apachya Feae* Borm., 1894 - Red label, partly printed and partly handwritten, not by Bormans; iv) Museo Civico di Genova.



Figs. 13-16: *Forcipula americana* Bormans, Syntype ♀; 13) Anterior portion of body; 14) Ultimate tergite and forceps; *Apachys feae* Bormans, Lectotype ♂; 15) Anterior portion of body; 16) Ultimate tergite and forceps.

3) Paralectotype 1 nymph, labelled as: i) Carin, Asciiiii Chebà, 1200-1300 m, L. Fea, 1.88; ii) *Apachya* Feae sp. nov. ♂; *nympha* - handwritten by Bormans; iii) ♂ - a small printed label; iv) *Syntypus* ♂ nym.; *Apachya feae* Borm., 1894 - Red label partly printed and partly handwritten, not by Bormans; v) Museo Civico di Genova.

4) 1 ♀ labelled as: i) Carin, Asciiiii Chebà, 900-1000 m, L. Fea, V.XII-88; ii) ♀ - a small printed label; iii) *Apachya Feae* De Borm. - handwritten, not by Bormans; iv) Museo Civico di Genova.

5) 1 nymph labelled as: i) Carin, Asciiiii Chebà, 1200-1300 m, L. Fea, 1.88; ii) ♀ - a small printed label; iii) *Apachya Feae* De Borm. - handwritten, not by Bormans; iv) Museo Civico di Genova.

#### M e a s u r e m e n t s (in mm):

	Lectotype	Paralectotype	
	♂	1 ♀	1 ♀
Length of body (excluding anal process)	40.0	35.0	25.0
Length of forceps	7.0	6.5	5.6
Length of anal process	3.5	2.6	2.3

R e m a r k s - BORMANS (1894) referred 1 ♂, 1 ♀ and 1 ♂ nymph that are listed above under item 1 to 3 and are designated as Lectotype and Paralectotypes. The remaining two specimens might have been added later to the collection.

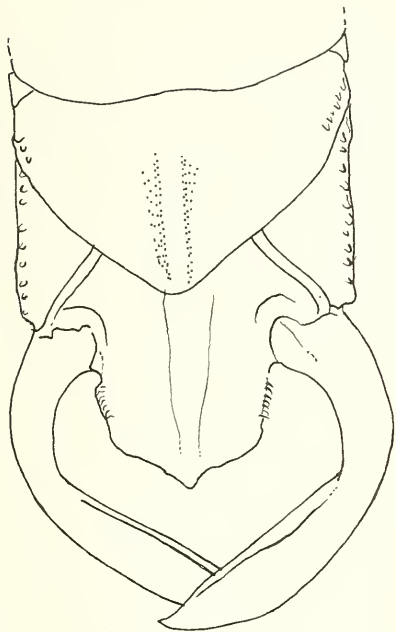
The description of the species is adequate and the illustrations are provided from the Type series.

#### ***Apachyus chartaceus* (Haan) Figs. 21-23**

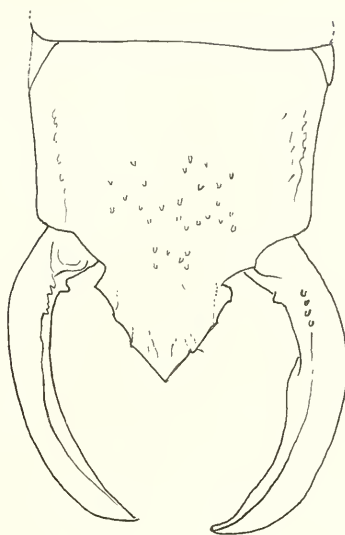
*Forficula (Apachya) chartacea* Haan, 1842, *Verh. nat. Ges. Nederl. Overz. Bezitt.*, 1842: 239, fig. 7 (♂, ♀ by indication); Sakeombang, Kahayan (Borneo), Boengoes, Padang-Bessie (Sumatra).

*Apachya chartacea*; Dohrn, 1863, *Stettin. ent. Ztg.*, 24: 43; Dubrony, 1879, *Annali Mus. civ. st. nat. Genova*, 14: 394, fig. ♂.

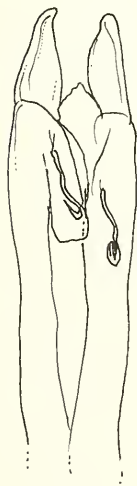
*Apachyus chartaceus*; Bormans and Krauss, 1900, *Das Tierreich*, 11: 13; Burr, 1908, *Ann. Mag. nat. Hist.*, (8) 1: 53; Burr, 1911, *Genera Insect.*, 122: 45; Burr, 1912, *Ambl. Naturh. Mus. Wien*, 26: 83; Borelli, 1926, *Treubla*, 8: 259; Borelli, 1932, *J. fed. Malay St. Mus.*, 17 (1): 183; Borelli, 1932, *Bull. Raffles Mus.*, 7: 83; Boeseman, 1954, *Zool. Verh. Leiden*, 21: 8; Brindle, 1965, *Ann. Mag. nat. Hist.*, (13) 8: 443; Brindle, 1966, *Ark. zool.*, (2) 20, No. 7: 442; Sakai, 1970, *Dermapterorum Catalogus Preliminaris*, 1: 28; Srivastava, 1976, *Rec. zool. Surv. India, Occ. pap.*, 2: 44; Srivastava, 1983, *Ent. Basiliensia*, 8: 42.



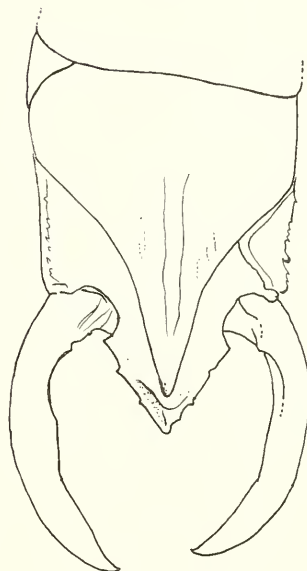
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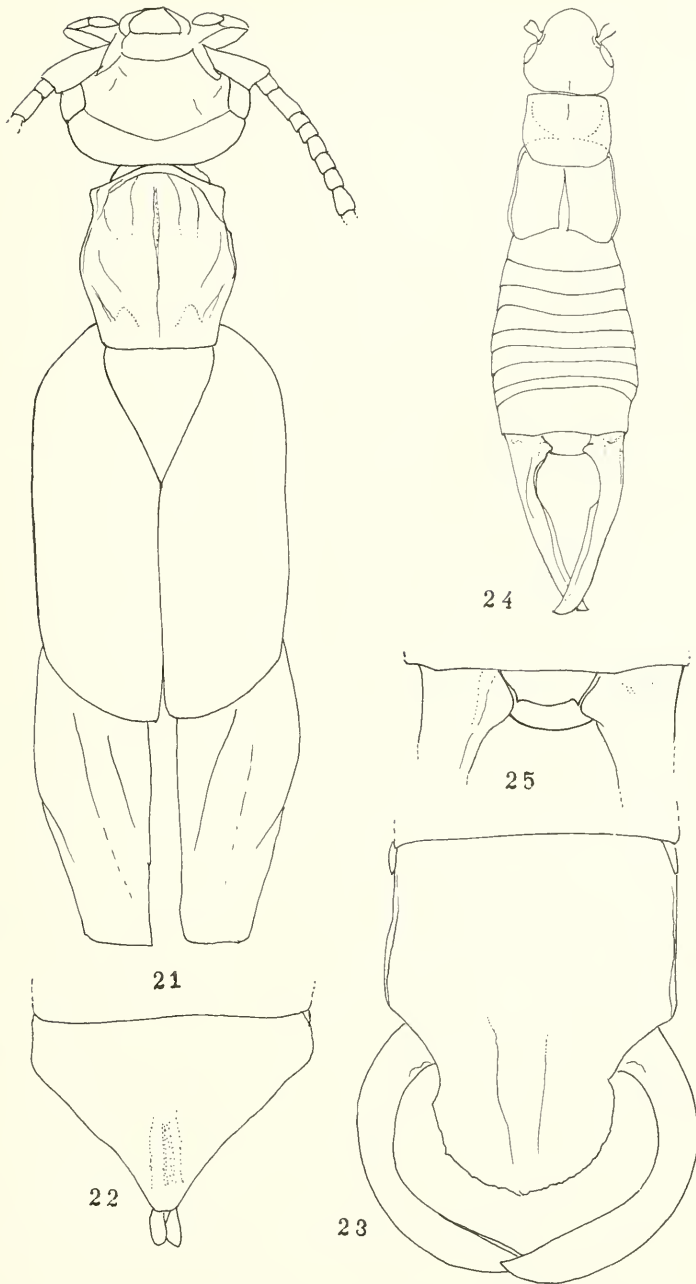


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Figs. 17-20: *Apachyus feae* Bormans, Lectotype ♂; 17) Penultimate sternite and forceps; 18) Genitalia; Paralectotype ♀; 19) Ultimate tergite and forceps; 20) Penultimate sternite and forceps.







Figs. 21-25: *Apachyus chartaceus* (Haan), ♂, 21) Anterior portion of body; 22) Penultimate sternite; 23) Ultimate tergite and forceps; *Nesogaster papuus* (Bormans), Holotype ♂; 24) Dorsal view, without antennae and legs; 25) Pygidium, enlarged.

## Measurements (in mm):

	♂
Length of head	- 0.8
Width of head	- 0.9
Length of pronotum	- 0.7
Width of pronotum	- 0.9
Length of elytra	- 1.0
Length of ultimate tergite	- 0.5
Width of ultimate tergite	- 1.3
Length of body	- 4.2
Length of forceps	- 1.7

Remarks – The above specimen is the Holotype of the species and following are some additional notes.

Head convex, smooth, sutures obsolete. Eyes slightly shorter than post-ocular area. Pronotum gently widened posteriorly, median sulcus faint, sides gently reflexed. Elytra meeting along the middle line, costal margin with a well defined ridge. Abdomen smooth, depressed, widened posteriorly. Pygidium subvertical, transverse, narrowed posteriorly, postero-laterally with a minute point and margin in-between gently convex.

**Nesogaster** sp.

Material examined – 1 ♀ labelled as: i) Engano, Bua Bua, Modigliani, V.VI.1891; ii) *Labia mucronata* Stål, var *sine alis*, teste A. De Bormans 1900; iii) Museo Civico di Genova.

Remarks – In having costal carina on elytra, this specimen is referable to *Nesogaster* Burr. In the absence of ♂ it is not possible to determine it up to specific level. Measurements: Length: Body - 7.0 mm; forceps - 1.6 mm.

## IRDEXINAE

**Irdex nitidipennis** (Bormans)

*Spongophora nitidipennis* Bormans, 1894, *Ann. Mus. civ. St. nat. Genova*, (2) 14: 382 (1 ♂; Burma, Carin Chebà - Type ♂ at Museo Civico di Storia Naturale "Giacomo Doria", Genova, Italy)

*Spongiphora nitidipennis*; Bormans & Krauss, 1900, *Das Tierreich*, **11**: 59.

*Irdex nitidipennis*; Srivastava, 1985, *Ann. Mus. civ. St. nat. Genova*, **85**: 209, fig. 4-15 (species redefined).

**M a t e r i a l e x a m i n e d** - 1) 1 ♀ labelled as: i) Tenasserim, Meetan, Fea, Apr. 1887; ii) *Labia mucronata* Stål, teste A. De Bormans, 1888 - partly handwritten, not by Bormans and partly printed; iii) Museo Civico di Genova.

2) 1 ♂ labelled as: i) Tenasserim, Mti fra Meekatan e Kycat, 1000 - 1400 m, Fea, Marzo, 1887; ii) *Sphingolabis gravidula* Gerst, teste A. De Bormans, 1894 - partly handwritten, not by Bormans and partly printed; iii) Museo Civico di Genova.

3) 1 ♂ labelled as: i) Teinzó, Birmania, Fea, Maggio, 1886; ii) *Sphingolabis gravidula* Gerst., teste A. De Bormans, 1894; iii) Museo Civico di Genova.

4) 1 ♀ labelled as: i) Tenasserim, Meetan, Fea, Apr. 1887; ii) *Sphingolabis gravidula* Gerst., teste A. De Bormans, 1894; partly handwritten, not by Bormans and partly printed; iii) Museo Civico di Genova.

**R e m a r k s** - The above material is referable to this species in the light of detailed diagnosis provided by Srivastava (1985). The specimens listed under item i) is macropterous and rest lack wings.

#### SPONGIPHORINAE

#### **Spongovostox semiflavus** (Bormans) Figs. 26-32

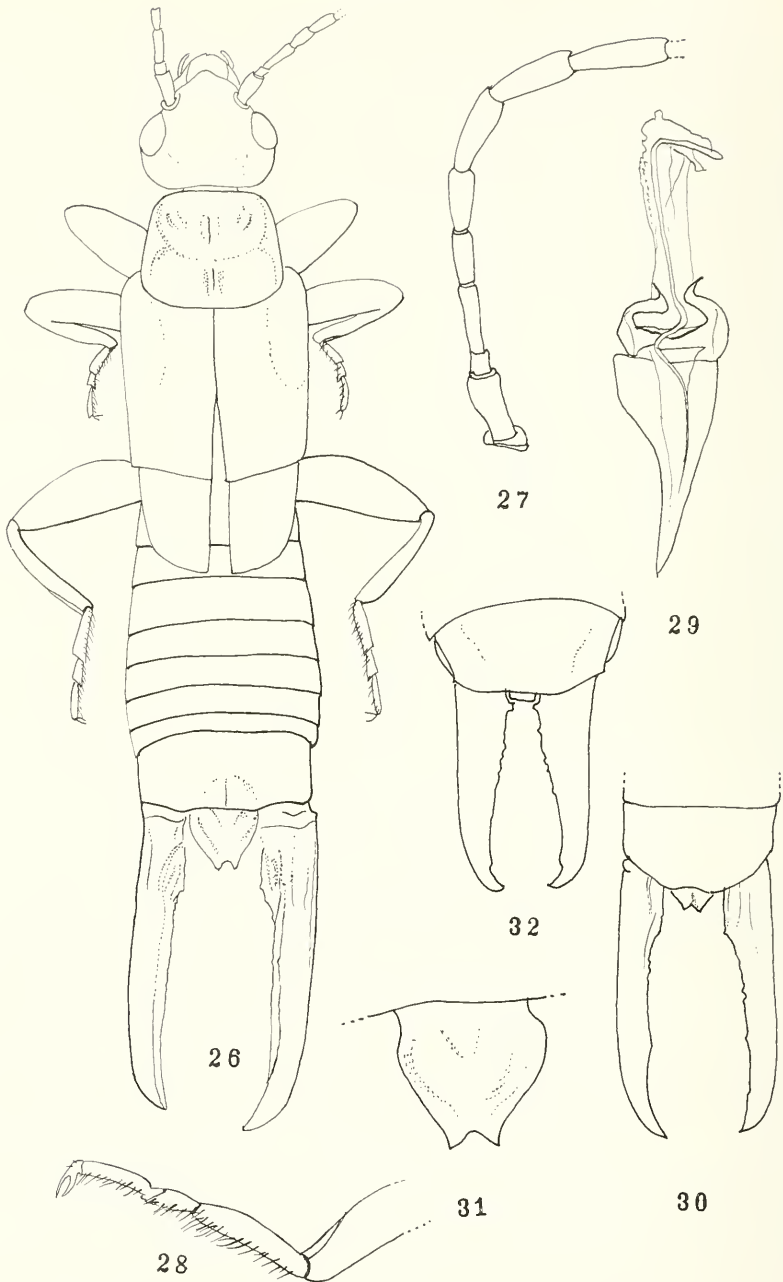
*Spongophora semi-flava* Bormans (pars) 1894, *Ann. Mus. civ. St. nat. Genova*, (2) **14**: 385 (1 ♂; - Hab. Carin Chebà, 900-1100 m, Mai-Décembre).

*Spongiphora semiflava*; Bormans and Krauss, 1900, *Das Tierreich*, **11**: 59.

*Spongovostox semiflavus*; Burr, 1911, *Genera Insect.*, **122**: 52.

**M a t e r i a l e x a m i n e d** - 1) 1 ♂ labelled as: i) Carin Chebà, 900-1100 m, L. Fea, V.VII-88; ii) *Spongophora semiflava* ♂ sp. nova - handwritten, by Bormans; iii) Typus - printed in red; iv) *Semi-flava* Borm. - handwritten, not by Bormans; v) Syntypus ♂; *Spongophora semiflava* De Borm, 1894 - Red label partly printed and partly handwritten, not by Bormans; vi) Museo Civico di Genova - genitalia mounted between two coverslips and pinned with the specimen.

2) 1 ♀ labelled as: i) Bhamò, Birmania, Fea X, 1886; ii) *Labia mucronata* Stål, teste A. De Bormans, 1888, partly handwritten, not by Bormans and partly printed; iii) Museo Civico di Genova.



Figs. 26-32: *Spongovostox semiflavus* (Bormans), Type ♂; 26) Dorsal view; 27) Antennal segments; 28) Hind tarsus; 29) Genitalia; 30) Penultimate sternite and forceps; 31) Pygidium enlarged; ♀; 32) Ultimate tergite and forceps.

3) 1 ♂; 1 nymph labelled as: i) Bhamò, Birmania, Fea, VIII, 1885; ii) *Labia mucronata* Stål, teste A. De Bormans 1888, partly handwritten, not by Bormans and partly printed; iii) Museo Civico di Genova.

4) 1 ♂ labelled as: i) Tenasserim, Thagatà, Fea, Apr., 1887; ii) *Labia mucronata* Stål, teste A. De Bormans, 1888 - partly handwritten, not by Bormans and partly printed; iii) Museo Civico di Genova.

5) 1 ♀ labelled as: i) Birmania, Shwego-myo, Fea, Ottobre, 1885; ii) *Labia mucronata* Stål, teste A. De Bormans, 1888, partly handwritten, not by Bormans and partly printed; iv) Museo Civico di Genova.

6) 1 ♀ labelled as: i) Carin Ghecù, 1300-1400 m, L. Fea, II.III.88; *Labia mucronata* Stål, teste A. De Bormans, 1894 - partly handwritten, not by Bormans and partly printed; iii) Museo Civico di Genova.

7) 1 ♀ labelled as: i) Engano, Kifa-Juc., Modigliani, V.1891; ii) *Labia mucronata* Stål var. *sine alis* - handwritten, not by Bormans; iii) *Labia mucronata* Stål, teste A. De Bormans, 1900 - partly handwritten, not by Bormans and partly printed; iv) Museo Civico di Genova.

8) 1 ♀ labelled as: i) Engano, Malaconni, Modigliani, VI.1891; ii) *Labia mucronata* Stål var. *sine alis*, teste A. De Bormans, 1900 - partly handwritten, not by Bormans and partly printed; iii) Museo Civico di Genova.

9) 2 ♂♂, 5 ♀♀ labelled as: i) Engano, Bua-Bua, Modigliani, V-VI, 1891; *Labia mucronata* Stål, teste A. De Bormans, 1900 - partly handwritten, not by Bormans and partly printed.

10) 2 ♀♀ labelled as: i) Mentawai, Si Oban Modigliani IV-VIII.94; ii) *Labia mucronata* Stål, teste A. De Bormans; 1900 - partly handwritten, not by Bormans and partly printed.

11) 1 ♀ labelled as: i) Mentawai, Si Metabe, Modigliani, VII.94; ii) *Labia mucronata* Stål, teste A. De Bormans, 1900 - partly handwritten, not by Bormans and partly printed; iii) Museo Civico di Genova.

#### M e a s u r e m e n t s (in mm):

	Type ♂		Type ♂
Length of head	- 1.1	Length of wings	- 1.1
Width of head	- 1.4	Length of pygidium	- 0.5
Length of pronotum	- 1.2	Width of pygidium	- 0.5
Width of pronotum	- 1.3	Length of body	- 7.5
Length of elytra	- 2.1	Length of forceps	- 2.8

**Remarks** — Material listed under items 7 and 8 is labelled as “var. sine alis”, but represents the macropterous forms.

BORMANS (1894) described the species on 1 ♂, 1 ♀ but the latter is not conspecific and represents the ♀ of *Forficula ornata* (Bormans).

The other material is referred here after comparing it with the Type (Holotype ♂) and the original description of the species.

The species is already described in detail but following additional information from the type ♂ will be useful for future workers.

Head about as long as broad. Eyes prominent, about as long as the post-ocular length. Antennae 15-segmented or more, 1st stout, expanded apically, shorter than the distance between antennal bases. Legs typical for the genus, hind tarsi with 1st segment longer than the 3rd; 2nd longer than broad, gently narrowed basally, claw without arolium.

### ***Spongovostox mucronatus* (Stål) Figs. 33-35**

*Forficula mucronata* Stål, 1860, *Eng. Resa Zool. Ins.*: 303 (♂ not ♀, Java).

*Labia mucronata*; Dohrn, 1864, *Stettin. ent. Ztg.*, 25: 321.

*Spongovostox mucronatus*; Brindle, 1971, *Ent. Tidskr.*, 92 (1-2): 18.

**Material examined** — 1) 1 ♂ labelled as: i) N. Guinea, Ighibirci, Loria, VII.VIII.90; ii) *Labia mucronata* Stål, teste A. De Bormans, 1900—partly handwritten, not by Bormans and partly printed; iii) Museo Civico di Genova - genitalia mounted between two coverslips and pinned with the specimen.

2) 1 ♀ labelled as: i) N. Guinea, Salavatti, XI.1875, Beccari; ii) ♀; iii) *Labia mucronata* (Stål), teste A. Dubrony (= A. De Bormans), 1879 - partly handwritten, not by Bormans and partly printed; iii) Museo Civico di Genova.

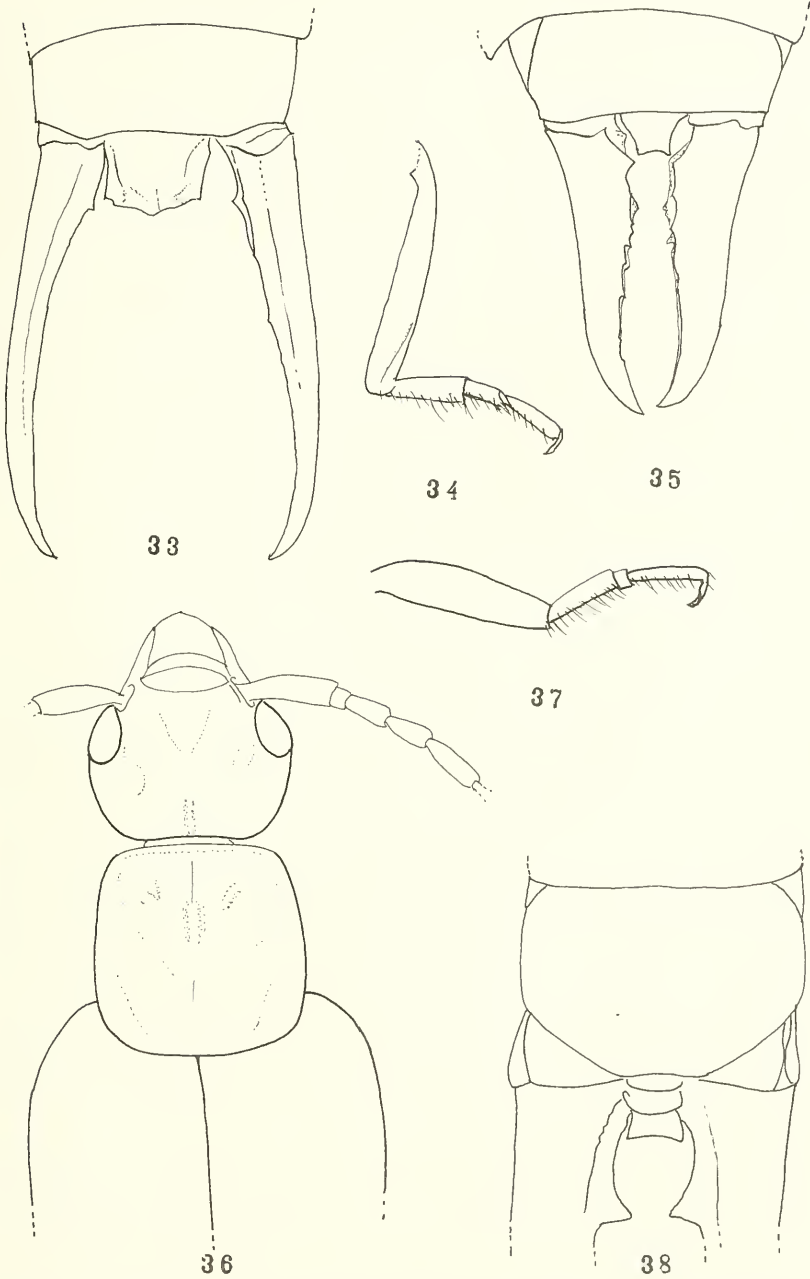
3) 1 ♀ labelled as: i) N. Guinea, Waicunina, Giugno 1890, L. Loria; ii) *Labia mucronata* Stål, teste A. De Bormans, 1900 - partly handwritten, not by Bormans and partly printed; iii) Museo Civico di Genova.

4) 1 ♀ labelled as: i) Amboina, 1873, O. Beccari; ii) ♀; iii) *Labia mucronata* (Stål) ♀ - handwritten by Bormans; iv) *Labia mucronata* (Stål), teste A. Dubrony (= De Bormans), 1879 - partly handwritten, not by Bormans and partly printed; iv) Museo Civico di Genova.

**Remarks** — The above material is referable to this species.

It shows close resemblance in general body colour to *Spongovostox semiflavus* (Bormans). The males of both species can be easily separated





Figs. 33-38; *Spongovostox mucronatus* (Stål), ♂; 33) Ultimate tergite and forceps; 34) Hind tibia and tarsus; ♀; 35) Ultimate tergite and forceps; *Sphingolabis hawaiiensis* (Bormans), ♂; 36) Anterior portion of body; 37) Hind tibia and tarsus; 38) Penultimate sternite and forceps.

by the shape of pygidium, forceps and the genitalia, especially parameres.

The isolated ♀ of both the species are difficult to discriminate. The only difference noted between the two is that in *Spongovostox mucronatus* (Stål) the forceps internally in apical 1/3 are unarmed whereas in *Spongovostox semiflavus* (Bormans) the branches internally are crenulate throughout the length terminating into a small tooth a little before apex.

### **Marava arachidis** (Yersin)

*Marava arachidis* Yersin, 1860, *Ann. Soc. ent. Fr.*, **8**: 509 (♂, ♀; Marseille, France).

**M a t e r i a l e x a m i n e d** - 1) 1 ♂ labelled as: i) Australia, Somerset, L.M. D'Albertis, I.75; ii) Forficula wallacei Dohrn - teste A. Dubrony (= A. De Bormans) 1879; iii) Sphingolabis arachidis Yersin (= Wallacei Dohrn) - teste A. De Bormans, 1894 - labels No. ii & iii both partly handwritten, not by Bormans & partly printed; iv) Museo Civico di Genova.

2) 1 ♂ labelled as: i) Nova Guinea, Audai, L.M. D'Albertis, Ag., 72; ii) ♀; iii) Forficula wallacei Dohrn, teste A. Dubrony (= A. De Bormans), 1879; iv) Sphingolabis arachidis Yersin (= wallacei Dohrn) - teste A. De Bormans, 1894 - labels No. iii & iv, both partly handwritten and partly printed; v) Museo Civico di Genova.

3) 1 ♀ labelled as: i) Nova Guinea, Me. Epa, L.M. D'Albertis, IV.75; ii) ♀; iii) Forficula wallacei Dohrn - teste A. Dubrony (= A. De Bormans), 1879; iii) Sphingolabis arachidis Yersin (= wallacei Dohrn) - teste A. De Bormans, 1894 - labels No. iii & iv, both partly handwritten and partly printed; v) Museo Civico di Genova.

4) 1 ♀ labelled as: i) N. Guinea, Mer., Waicunina, Giugno 1890, L. Loria; ii) Sphingolabis arachidis Yersin (= Wallacei Dohrn) - teste A. De Bormans, 1894 - partly handwritten, not by Bormans and partly printed, iii) Museo Civico di Genova.

5) 1 ♀ labelled as: i) N. Guinea, Mer., Kapakapa, Mag. Giugno, 1891, L. Loria; ii) ♀; iii) Sphingolabis arachidis Yersin (= Wallacei Dohrn) - teste A. De Bormans, 1894 - partly handwritten, not by Bormans and partly printed; iv) Museo Civico di Genova.

6) 1 ♀ labelled as: i) Is. Goodenough, Gennais, 1890, L. Loria; ii) Sphingolabis arachidis Yersin (= Wallacei Dohrn) - teste A. De

Bormans, 1894 - partly handwritten, not by Bormans and partly printed; iii) Museo Civico di Genova.

7) 1 ♀ labelled as: i) Isole Aru, Wokan, O. Beccari, 1873; ii) ♀; iii) *Forficula wallacei* Dohrn, teste A. Dubrony (= De Bormans), 1879 - partly handwritten, not by Bormans and partly printed; iv) *Sphingolabis arachidis* Yersin (= Wallacei Dohrn) - teste A. De Bormans, 1894 - partly handwritten, not by Bormans and partly printed; v) Museo Civico di Genova.

8) 1 ♀ labelled as: i) Teinzó, Birmania, Fea, Maggio, 1886; ii) *Sphingolabis gravidula* Gerst. - teste A. De Bormans, 1894 - partly handwritten, not by Bormans and partly printed; iii) Museo Civico di Genova.

**Remarks** - The above material is referable to this species.

### ***Sphingolabis hawaiiensis* (Bormans) Figs. 36-41**

*Forficula hawaiiensis* Bormans, 1883, *Annali Mus. civ. St. nat. Genova*, **18**: 341 (♂; ♀; different localités de plusieurs îles de l'Archipel Hawaïen).

**Material examined** - 1) 1 ♂, 2 ♀♀ labelled as: i) N. Guinea S.E. Moroka, 1300 m, Loria, VII-XI.93; ii) *Forficula hawaiiensis* Borm - teste A. De Bormans, 1900 - partly handwritten, not by Bormans and partly printed; iii) Museo Civico di Genova - ♂ with genitalia mounted between two coverslips and pinned with the specimen.

2) 1 ♀ labelled as: i) N. Guinea, Ighibirei, Loria, VII-VIII.90; ii) *Forficula hawaiiensis* Borm. - teste A. De Bormans, 1900 - partly handwritten, not by Bormans and partly printed; iii) Museo Civico di Genova.

3) 2 ♀♀ labelled as: i) N. Guinea S.E., Paumomu riv., Loria, IX-XII.92; ii) *Forficula hawaiiensis* Borm. - teste A. De Bormans, 1900 - partly handwritten, not by Bormans and partly printed; iii) Museo Civico di Genova.

4) 1 ♀ labelled as: i) N. Guinea, Dilo, Loria, VI-VII.90; ii) *Forficula hawaiiensis* Borm. - teste A. De Bormans, 1900 - partly handwritten, not by Bormans and partly printed.

**Remarks** - Although species is described in detail by BORMANS (1883), the following remarks would be useful in the determination of this species.

Head about as broad as long, weakly convex, sutures obsolete, in place of median suture a groove present, smooth, hind margin emarginate. Eyes shorter than the post-ocular length. Antennae with basal segment narrowed at base, slightly longer than the distance between antennal bases; 2nd short, about as long as broad; 3rd long and cylindrical; 4th about as long as or a trifle shorter than preceding; 5th longer than 3rd, remaining gradually increasing in length and thinning, except a few apical ones shorter. Legs typical, hind legs slightly longer than clytra; hind tarsi with 1st segment almost equal to 3rd; 2nd short, about as long as broad, claw without arolium.

M e a s u r e m e n t s (in mm):

	♂♂	♀♀
Length of body	11.8 - 13.0	9.9 - 13.3
Length of forceps	4.1 - 5.0	2.5 - 4.0

R e m a r k s - The ♂ genitalia is figured here for the first time.

CHELISOCHIDAE

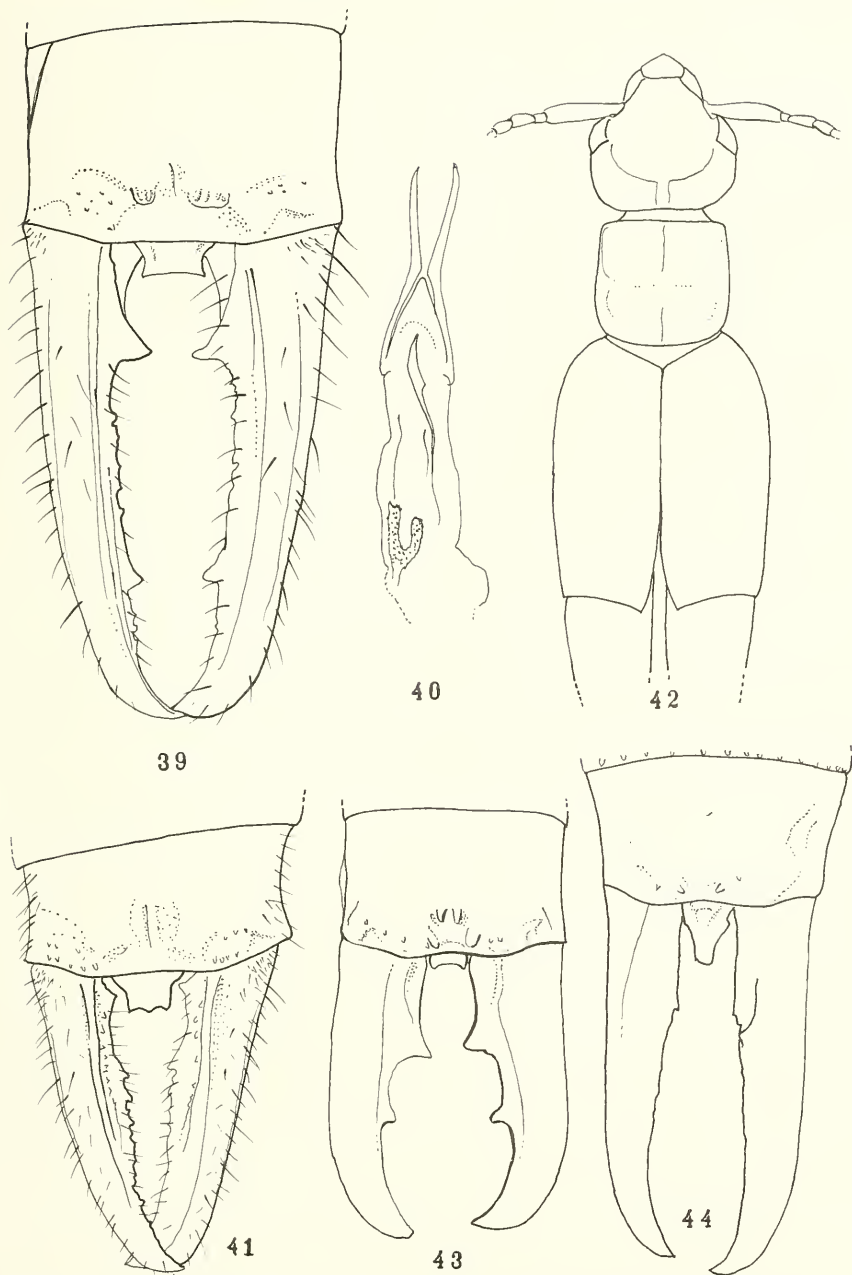
**Proreus laetior** (Dohrn) Figs. 42-44

*Lobophora laetior* Dohrn, 1865, *Stettin. ent. Ztg.*, 26: 73 (♀; Seule); Dubrony, 1879, *Annali Mus. civ. St. nat. Genova*, 14: 374, figs ♂; ♀ (1 ♂, 1 ♀; Acqui Conora (Ternate).

M a t e r i a l e x a m i n e d - 1) 1 ♂ labelled as: i) Ternate, X.1875, Beccari; ii) ♀; iii) *Lobophora laetior* Dohrn-teste A. Dubrony (= De Bormans), 1879 - partly handwritten, not by Bormans and partly printed; iii) Museo Civico di Genova; genitalia not traceable; perhaps taken out earlier.

2) 1 ♀ labelled as: i) Ternate, Acqui Conora, Beccari, 1874.XI; ii) ♀; iii) *Lobophora laetior* Dohrn - teste A. Dubrony (= De Bormans), 1879; iii) Museo Civico di Genova.

R e m a r k s - The above material has been referred and figured by Dubrony (1879) and are correctly assigned to this species.



Figs. 39-44: *Spingolabis hawaiiensis* (Bormans), ♂; 39) Ultimate tergite and forceps; 40) Genitalia; ♀; 41) Ultimate tergite and forceps; *Proreus laetior* (Dohrn), ♂; 42) Anterior portion of body; 43) Ultimate tergite and forceps; ♀; 44) Ultimate tergite and forceps.

## FORFICULIDAE

## ALLODAHLINAE

**Allodahlia coriacea** (Bormans) Figs. 45-50

*Anechura coriacea* Bormans, 1894, *Annali Mus. civ. St. nat. Genova*, (2) **14**: 403 (1 ♂; Hab. Carin Chebà, 900-1100 m., Mai-Décember).

**Material examined** - 1) Holotype ♂ labelled as: i) Carin Chebà, 900-1100 m, L. Fea, V.XII.88; ii) Typus - printed in red with border of same colour; iii) *Anechura coriacea* ♂, sp. nov. - handwritten by Bormans; iv) *Coriacea* Borm - handwritten, not by Bormans; v) Holotypus, *Anechura coriacea* Bormans, 1894 - partly printed and partly handwritten, not by De Bormans - red label; vi) Museo Civico di Genova - genitalia mounted between two coverslips and pinned with the specimen.

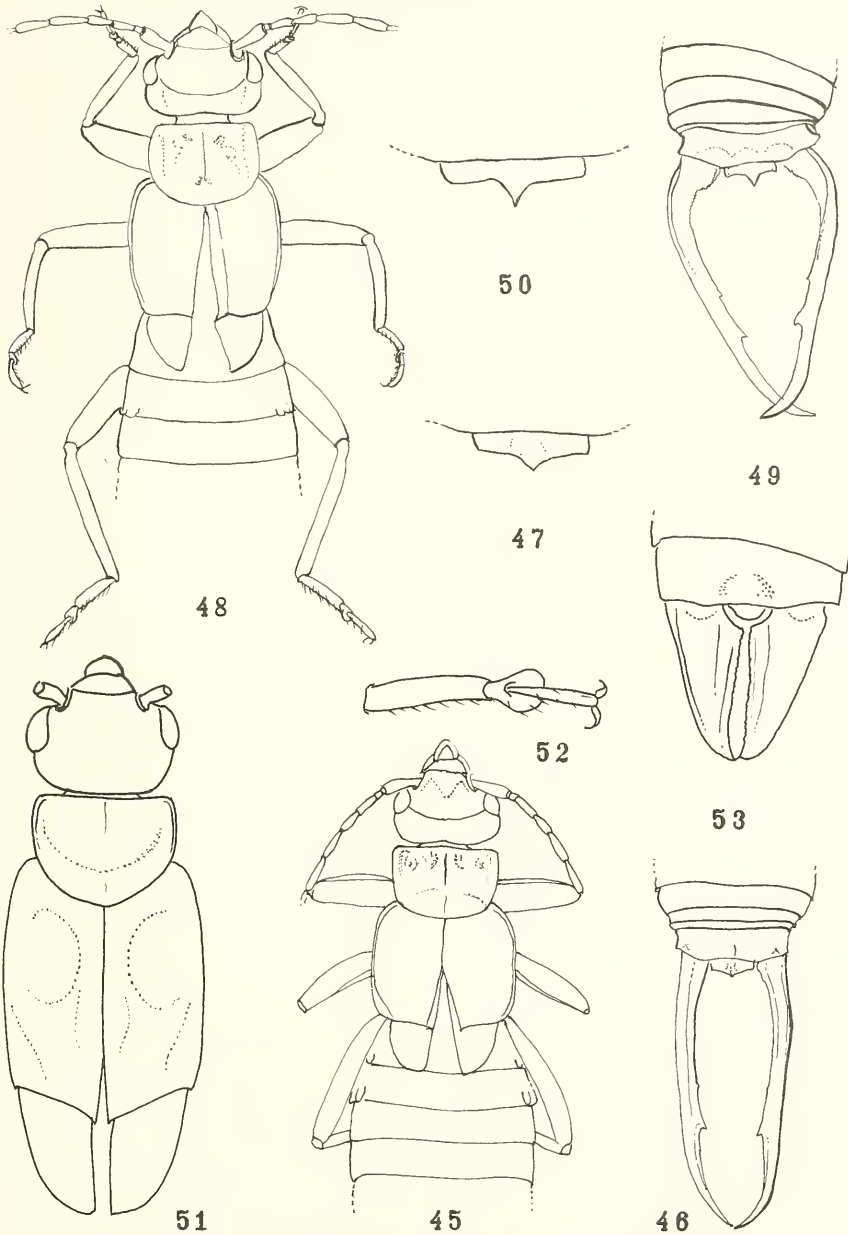
2) 1 ♂ labelled as: i) Tenasserim, M. Mooleyit, 1000-1300 m., Fea, Apr. 1887; ii) ♂; iii) *Anechura ancylura* Dohrn, Teste A. De Bormans, 1888 - partly printed and partly handwritten, not by Bormans.

3) 1 nymph labelled as: i) Tenasserim, Mt. Mooleyit, 1800-1900 m., Fea, Marzo, 1887; ii) *Anechura ancylura* Dohrn, teste A. De Bormans, 1888 - partly printed and partly handwritten, not by Bormans; iii) Museo Civico di Genova.

**Remarks** - The original description of species is adequate but following additional information from type ♂ would be useful.

Head orange with sutures distinct. Eyes smaller than the post-ocular length. Basal antennal segment about as long as the distance between antennal bases. Elytra with punctation deep and coalescent. Wings impunctate, yellowish with external margin dark brown - both colours merging gradually with each other. Pygidium transverse, postero-laterally and in middle with a spine but latter more, prominent and the margin on either side of this median tooth slightly oblique. Forceps almost horizontal, gently undulate in apical 1/3, internal margin with an indication a spine at about middle, followed by a sharp, posteriorly directed spine.

The other ♂ is referred to this species on the basis of transverse pygidium with a postero-lateral and median tooth, of which latter is more pronounced. The forceps are more strongly undulate with internal teeth larger than that of Holotype ♂. It is a case of individual



Figs. 45-53: *Allodahlia coriacea* (Bormans), Holotype ♂; 45) Anterior portion of body; 46) Ultimate tergite and forceps; 47) Pygidium, enlarged; Other ♂; 48) Anterior portion of body; 49) Ultimate tergite and forceps; 50) Pygidium, enlarged; *Forficula ornata* Bormans, ♀; 51) Anterior portion of body; 52) Hind tarsus; 53) Ultimate tergite and forceps.



variation. Besides, other material from N.E. India, details of which will be discussed elsewhere, support the above view.

### **Allodahlia scabriuscula** (Serville)

*Forficula scabriuscula* Serville, 1839, *Hist. nat. Orth.*: 38 (♀, Holotype; Amerique méridionale (locality erroneus); Vienna Museum).

**Material examined** - 1 ♂ labelled as: i) Borneo, Sarawak, 1865-66, Coll. G. Doria; ii) ♂; iii) *Forficula brachynota* de Haan-teste A. Dubrony (= De Bormans), 1879; iv) *Anechura scabriuscula* Serv. (= *brachynota* de Haan) - teste A. De Bormans, 1888 - labels; iii) and iv) partly handwritten, not by Bormans and partly printed; v) Museo Civico di Genova.

#### FORFICULINAE

### **Forficula ornata** Bormans Figs. 51-53

*Forficula ornata* Bormans, 1884, *Notes Leyden Mus.*, 6: 192 (♂; Padang, Sumatra - Leiden Museum).

*Spongophora semiflava* Bormans (pars), 1894, *Ann. Mus. civ. St. nat. Genova*, (2) 14: 385 (1 ♀; Carin Ghecù, 1300-1400 m, Fevrier, Mars).

**Material examined** - 1 ♀ labelled as: i) Carin Ghecù, 1300-1400 m, L. Fea, II-III.'88; ii) typus - Lable printed in red with a border; iii) *Spongophora semiflava*, ♀, sp. nova - a handwritten label by Bormans; iv) Syntypus ♀, *Spongophora semiflava* De Bormans, 1894 - partly printed and partly handwritten, not by Bormans.

**Remarks** - In having the second tarsal segment lobed, the above specimen does not belong to Spongiphorinae. On the basis of semicircular pronotum, elytra with a yellow spot in basal half, yellow wings and fine punctation on abdominal tergtes above specimen belongs to this species. However, in the absence of a ♂ the present identification should be treated with some reserve.

Following is the brief description of the specimen which would help future workers in associating the opposite sex.

General colour reddish brown with shades of black on abdominal tergites; legs yellow; pronotum yellow on sides; elytra with a yellow rounded spot and wings yellow.

Head about as long as broad, sutures obsolete, frons convex, smooth. Eyes prominent, about as long as post-ocular length. Antennae

broken, only basal segments remaining, slightly shorter than the distance between antennal bases. Pronotum slightly broader than long, semicircular posteriorly. Abdomen moderately convex, lateral rubercles on 3rd and 4th tergites present, latter more distinct. Ultimate tergite transverse, punctuated. Forceps depressed, simple, almost straight, internally finely crenulated.

Measurements (in mm):

	♀
Length of head	- 1.2
Width of head	- 1.2
Length of pronotum	- 0.9
Width of pronotum	- 1.1
Length of elytra	- 2.0
Length of wing	- 1.1
Length of body	- 8.5
Length of forceps	- 1.3

#### AKNOWLEDGEMENTS

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#### SUMMARY

The present study is based on 66 specimens comprising 15 species of Dermaptera determined by Bormans. These include "Types or Syntypes" of six species viz., *Psalis indica* var. *minor*; *Psalis guttata*; *Apachyus feae*; *Labia papua*; *Spongophora semiflava* and *Anechura coriacea*.

Lectotype and paralectotypes are designated for *Psalis minor*; *Psalis guttata* and *Apachyus feae*.

Brief remarks and illustrations for most of the species are provided.

#### RIASSUNTO

Il presente lavoro è basato su 66 esemplari comprendenti 15 specie di Dermatteri determinati da Bormans. Questi includono "Typi o Syntipi" di sei specie *Psalis indica* var. *minor*; *Psalis guttata*; *Apachyus feae*; *Labia papua*; *Spongophora semiflava* e *Anechura coriacea*.

Sono designati i lectotipi e paralectotipi di *Psalis minor*; *Psalis guttata* e *Apachyus feae*.

Sono fornite brevi annotazioni ed illustrazioni della maggior parte delle specie.

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